

100/02139 A04

REMARKS

The present application includes claims 139-167, 188, 190-198, 203-205, 235-251, 262-263, 265-278, 280-291 and 293-299. Claims 139, 243, 262, 268 and 288 were amended. Claim 292 was cancelled.

Following is a discussion of each of the rejections of the Examiner divided according to the independent claims. The dependent claims are allowable at least because of their parent claim.

Independent claim 139

Claims 139, 142-143, 146-150, 157-161 and 166-167 stand rejected under 35 U.S.C. 102(b) as being anticipated by Carroll et al. (U.S. patent 5,517,194).

Claims 139-141, 143, 162-165 and 283-295 stand rejected under 35 U.S.C. 102(e) as being unpatentable over Yokota et al. (U.S. patent 5,914,980) in view of Hartkorn (U.S. patent 3,961,323).

Claims 139, 150-153 and 156 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Gunnarsson (U.S. patent 5,552,790) in view of Hartkorn (U.S. patent 3,961,323).

Claim 277 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Gunnarsson (U.S. patent 5,552,790) in view of Rodal et al. (U.S. patent 5,467,095).

Claim 278 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Gunnarsson (U.S. patent 5,552,790) in view of Cole et al. (U.S. patent 5,523,749).

Applicants respectfully traverse the rejections and submit that the Examiner has not established a *prima facie* rejection. Claim 139 was amended to make clear that the transmission or reception are on an acoustic carrier. This limitation was included in the claim already and the amendment was made in order to avoid any possible misinterpretations which were not the intended meaning of the claim.

Claim 139, as amended, requires a low frequency circuit, adapted to handle transmission or reception of information on an acoustic carrier.

This is not taught or suggested by any of the cited references. As acknowledged by the Examiner (paragraphs 8 and 9 of the office action), Yokota and Gunnarsson do not teach an acoustic carrier. Applicants respectfully submit that Carroll also does not teach or suggest an acoustic carrier and only relates to an RF transponder (abstract). The Examiner has not stated otherwise, as in the rejection based on Carroll (page 4 of the office action), the Examiner has made no mention of an acoustic carrier.

Regarding Hartkorn, the newly cited reference, applicants respectfully note that Hartkorn

100/02139 A04

does not teach or suggest an acoustic carrier. Fig. 2 of Hartkorn clearly shows a 27 MHz RF oscillator and loop antenna 16 is clearly an RF antenna. The audio frequency from about 2-20 kHz (col. 5, lines 41-43) related to by the Examiner is the information that the transmitter 8 sends to warn of a possible theft attempt and does not relate to the type of signals transmitted.

Thus, none of the cited references relates to a smart card transmitting information on an acoustic carrier, as required by claim 139.

Independent claim 154

Claims 154-155 and 280-282 stand rejected under 35 U.S.C. 102(b) as being unpatentable over Gunnarsson (U.S. patent 5,552,790) in view of Hartkorn (U.S. patent 3,961,323).

Claim 144 stands rejected under 35 U.S.C. 102(e) as being unpatentable over Yokota et al. (U.S. patent 5,914,980) in view of Hartkorn (U.S. patent 3,961,323).

Claim 145 stands rejected under 35 U.S.C. 102(b) as being anticipated by Carroll et al. (U.S. patent 5,517,194).

Applicants respectfully traverses the rejections and submit that the Examiner has not established a *prima facie* case of obviousness, since at least one limitation of the claims is not taught by any of the cited references.

Claim 154 requires a low frequency circuit, for handling information modulated on a carrier frequency of between 5 kHz and 30 kHz.

As explained in the previous response to office action, Gunnarsson relates to microwave transmissions (col. 1, lines 31-34) with carrier frequencies of 2.4 GHz and above (col. 2, lines 64-67). The low frequency of 32.8 kHz referred to by the Examiner (col. 6, lines 25-26) relates to switching of the microwave impedance and not to the carrier frequency (col. 6, lines 27-37).

Hartkorn, the newly cited reference, relates to a carrier of 27 MHz, which is allocated to the citizens band (col. 2, lines 50-52, col. 3, lines 45-47 and Fig. 2). The audio frequency from about 2-20 kHz (col. 5, lines 41-43) related to by the Examiner is the information that the transmitter 8 sends to warn of a possible theft attempt and is not the frequency of the carrier, as required by claim 154.

The rejections of claims 144 and 145 seem to be based on their old form before their dependence was changed. For completeness, applicants repeat what was stated in the previous response regarding Yokota and Carroll.

Yokota relates to a 200 kHz carrier frequency (col. 8, lines 17-18) for transmission from the reader 300 to the card 400 and a 100 kHz carrier frequency for transmission from the card 400 to the reader 300 (col. 11, lines 4-8). Yokota further states that the band of several 100 kHz is

100/02139 A04

advantageous. Therefore, a reader of Yokota would not contemplate using lower frequency ranges for the carrier frequency.

Carroll suggests a slightly lower frequency than Yokota, going down to 125 kHz for transmission to the card and half that frequency, 62.5 kHz, for transmission from the card (Fig. 3, col. 7, lines 40-50).

While Carroll and Yokota have identified the advantages of using frequencies in the range of hundreds of kHz for transmission to the card, and a fraction of that frequency, as low as 40 kHz (Carroll, col. 2, lines 7-9) for transmission from the card, the cited references also stated the advantages of higher frequencies (for example, Gunnarsson, col. 1, lines 31-34) and, therefore, a person of the art would not use frequencies below the frequencies discussed above based on Carroll or Yokota. In the present application, the advantages of using frequencies easily generated by sound cards were identified and therefore use of frequencies below 30 kHz was suggested (pages 15-16). Absent such identification by the inventors and considering the data transfer restrictions that come with lower frequency transmission, it would not be obvious to those skilled in the art at the time the present application was filed, to use lower frequencies beyond those suggested by the art.

Independent claims 283, 288 and 295

Claims 283-295 stand rejected under 35 U.S.C. 102(e) as being unpatentable over Yokota et al. (U.S. patent 5,914,980) in view of Hartkorn (U.S. patent 3,961,323). Applicants respectfully traverse the rejection and submit that the Examiner has not established a *prima facie* case of obviousness, since at least one limitation of the claims is not taught by any of the cited references.

Claim 283 requires a piezoelectric antenna. Such an antenna is not taught or suggested by either Yokota or Hartkorn and the Examiner has not stated otherwise in the office action. Yokota describes a loop antenna (col. 6, lines 47-61) and does not teach or suggest a piezoelectric antenna. Hartkorn relates to an antenna system which utilizes the metal surface of the object under surveillance (col. 3, lines 42-45), which is not a piezoelectric antenna and cannot be used on a smart card.

Applicants respectfully submit that the distinction between a piezoelectric antenna and a coil antenna was discussed in applicants previous response together with a dictionary definition of the term piezoelectric. The Examiner did not relate to this issue in the response to the arguments of the current office action.

The dependent claims are allowable at least by virtue of their parent claim 283. Nonetheless, at least some of the claims add further patentability over the art. Claim 285, for

100/02139 A04

example, requires that the low frequency circuit is adapted for transmission of acoustic signals through the piezoelectric antenna. As mentioned above, the cited references do not teach or suggest transmitting acoustic signals.

Claim 288 was amended to require that the high frequency circuit utilizes a frequency above 1 MHz, as was required by claim 292 which was cancelled. Claim 288 now requires a smart card having both a low frequency circuit (up to 100 kHz) and a high frequency circuit (above 1 MHz). This is not taught or suggested by the cited art.

Yokota relates to using a 100 KHz frequency in one direction and a 200 KHz frequency in the other direction. The 4 MHz signal of Yokota is a clock signal and is not used as a carrier of transmitted signals. Hartkorn uses only a single circuit, which has a 27 MHz frequency. Applicants note that there is no teaching in the heart to use the high frequency of Hartkorn with the low frequency of Yokota. In fact, in both of Yokota and Carroll, a high frequency of twice the low frequency is used and not ten times the low frequency as required by claim 288.

Claim 293 requires a low frequency circuit, for handling information transmitted to the at least one receiving antenna, which information is modulated on a carrier frequency of between 5 kHz and 100 kHz. Yokota describes using a 100 KHz carrier for transmitting by the card 400, but a carrier of 200 KHz for transmitting to the card. Hartkorn, as discussed above, uses a 27 MHz carrier. Thus, neither of cited pieces of art teaches a circuit that receives signals at a carrier frequency of 100 KHz or lower.

Independent claim 188

Claim 188 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Nitta (US 4,851,654) in view of Hartkon (U.S. patent 3,961,323). Applicants respectfully traverse the rejection and submit that the Examiner has not established a *prima facie* case of obviousness, since at least one limitation of the claims is not taught by any of the cited references.

Claim 188 as amended requires an external acoustic communication link circuit for demodulating information from sound or speech signals received by an acoustic signal reception element of the smart card. In Nitta, in contrast, microphone 9 is used to receive speech signals, but not modulated sound or modulated speech signals. Column 3, lines 8-34, referred to by the Examiner, relate to RF transmissions and not transmission on modulated acoustic signals.

As discussed above, Hartkorn does not teach or suggest an acoustic signal reception element. Thus, neither of the cited references teaches or suggests a circuit which demodulates information from sound or speech signals.

Independent claim 190

100/02139 A04

Claims 190-198 stand rejected under 35 U.S.C. 102(b) as being anticipated by Nerlikar (US 5,629,981).

Applicants respectfully traverse the rejection and submit that the Examiner has not established a *prima facie* case of anticipation regarding claim 190, since the Examiner has not shown a smart card having a biometric data acquisition circuit, sharing an input transducer with a communication link, as required by claim 1.

Nerlinkar describes an RFID card which carries ID information which is used to identify an individual to an RF reader associated with a lock mechanism (col. 6, lines 9-19). The passages of Nerlinkar related to by the Examiner describe a card that stores biometric information (col. 7, lines 23-27) for enhanced authentication purposes. Nerlinkar does not teach or suggest including a biometric data acquisition circuit on the RFID card. The closest that applicants found to a biometric data acquisition circuit is an analog sensor (temperature, humidity, pressure) which is used to verify that the environment conditions are as they should be (col. 4, lines 40-42 and col. 15, lines 63-67). Therefore, applicants respectfully submit that Nerlinkar does not teach a biometric data acquisition circuit.

But even if a biometric data acquisition circuit was considered obvious, there is no suggestion that the biometric data acquisition circuit share an input transducer with a communication link of the RFID card. In Nerlinkar, the communication link uses an RF read/writer transponder 304 (col. 7, line 13), which is not used in any way for biometric data acquisition.

The dependent claims add further patentability over Nerlinkar. Claim 191, for example, requires an acoustic communication link. Applicants take notice that an acoustic communication link is a link which uses acoustic waves. Nerlinkar only suggests an RF link, which is not an acoustic link.

Claim 193, for example, requires a motion determination circuit, which is not taught or suggested by Nerlinkar. Claim 196, for example, requires a processor for evaluating said biometric data against a sample of biometric data. In Nerlinkar, the smart card does not include a processor. The comparison of biometric information is performed, to applicants best understanding of Nerlinkar, by the equipment/facility segment and not by the user ID badge.

Independent claim 203

Claims 203-205 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nerlikar (US 5,629,981) in view of Mainguet (US patent 6,289,114) and (for claim 204) an additional reference.

100/02139 A04

Applicants respectfully traverse the rejection and submit that the Examiner has not established a *prima facie* rejection, as the Examiner has not provided motivation to combine the references and since the pressure sensors of Mainguet includes external connection pin 13 (col. 4, lines 1-3), which are not suitable for mounting on a smart card.

The fact that the pressure sensor of Nerlinkar is listed together with humidity and temperature sensors (col. 4, line 42), and absent any other teaching in Nerlinkar (an electronic search found no other mention of the word pressure), is indicative that the pressure sensor is intended for determining barometric pressure of the environment, as the temperature and humidity sensors are for assessing the environment (col. 15, lines 63-67). Even if this is not the case, a single pressure sensor not included in an array can be used at most as an actuation switch. Therefore, Nerlinkar does not teach or suggest using a pressure sensor for determining finger prints and has no reason to replace its pressure sensor with an array of pressure sensors as suggested by Mainguet.

Furthermore, the sensors of Mainguet cannot be mounted on a smart card.

Independent claim 235

Claims 235-242 and 296-299 stand rejected under 35 U.S.C. 103(a) as being anticipated by Yokoyama (US patent 4,942,534) in view of Nikolich (U.S. patent 5,986,562).

Applicants respectfully traverse the rejection and submit that the Examiner has not established a *prima facie* rejection, as the Examiner has not provided motivation to combine the references in a manner which achieves the requirements of claim 235.

Claim 235 requires a first separable part including at least a memory portion of the smart card and a second separable part, which is flexible, comprising at least a holding element for holding the first part and an electronic circuit associated with an operation of the first part.

The Examiner stated that it would be obvious to incorporate the plastic tag holder of Nicolich into the system as taught by Yokoyama et al. in order to provide an easily molded holder which is comfortable to a tag/badge wearer, thus providing a more user friendly system.

Applicants respectfully submit, however, that Yokoyama does not teach or suggest using its IC card as a badge to be worn and does not state any reason for the holder to be easily molded. The holder is intended to serve as an interface between the IC card and a specific environment (col. 2, lines 18-30) and therefore several interface units may be required. In such a case, it is not clear that flexible interfaces are advantageous, as when they are not in use they may be harder to store. On the other hand, if the IC card of Yokoyama is taken to be intended for use with only a single interface, the only reasons given by Yokoyama to separate the IC card from the holder are

100/02139 A04

ones that pertain to non-flexible holders. For example, Yokoyama states that since the IC card does not have a transmitter or receiver, the IC card can be formed in a small size (col. 9, lines 3-10). That is, if Yokoyama were to contemplate a flexible holder, the holder and card would be incorporated into a single non-separable unit.

Claims 243-251 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Moon (US 6,211,858) in view of Prasad (US 6,237,026) and Nagata (U.S. patent 4,677,657) and for claims 244 and 250 also Weatherill (U.S. patent 5,881,149).

Claim 243 was amended to require circuitry for presenting non-speech information as speech. In contrast, none of the cited references teaches or suggests circuitry that converts non-speech signals into speech that can be sounded by a speaker.

Claims 262-263 and 265-267 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Pitroda (US 5,884,271) in view of Iwamatsu (JP01226091), and for claim 266 further in view of Blinn (US 6,058,373).

Applicants traverse the rejection and submit that the Examiner has not established a *prima facie* case of unpatentability regarding claim 262, since the Examiner did not show at least one element of claim 262 in either of the references cited. Claim 262 was amended for clarity to state that the acoustic display is configured to sound pertinent information regarding the transaction, rather than merely stating that the display sounds the pertinent information.

Iwamatsu relates to apparatus for displaying animation images and sounding music. Applicants did not find in the abstract of Iwamatsu any mention of an acoustic display configured to sound transaction information, as required by claim 262.

Column 9, lines 55-60, of Blinn, to which the Examiner related, merely states that the Internet is used to present text, audio and video. Blinn does not teach or suggest sounding pertinent information regarding a transaction. Even if Blinn would suggest a web site sounding transaction information, it would not be obvious to have a smart card which is designed to sound transaction information, at least because smart cards have a limited size relative to computers used as browsers.

The dependent claims are allowable at least because they depend on an allowable claim.

Claims 268-276 stand rejected under 35 U.S.C. 102(b) or 103(a) as being unpatentable over Pavlov (US 4,614,861) alone, or in view of Kelsey (US 5,907,142).

Applicants respectfully traverse the rejection and submit that the Examiner has not established a *prima facie* case of unpatentability regarding claim 268, since the Examiner did not show a controllable pattern display having at least two states, a first state indicating that the smart

100/02139 A04

card is valid and a second state indicating the smart card is invalid.

In order to expedite the prosecution, however, applicants amended the claim to add a controller that changes the state of the display when the card may have been lost or stolen. This is not taught or suggested by Pavlov.

Conclusion

Applicants wish to emphasize that RF signals and acoustic signals are totally different physical phenomena having different characteristics, for example transmission ranges. These signals are totally different and should not be mixed with each other. In order to speed up the prosecution, applicant's agent will call the Examiner to emphasize this difference.

In view of the above remarks, applicants submit that the claims are patentable over the prior art. Allowance of the application is respectfully awaited. If, however, the Examiner is not convinced and the Examiner is of the opinion that a telephone conversation may forward the present application toward allowance, applicants respectfully request that the Examiner call the undersigned at 1 (877) 428-5468. Please note that this is a direct *toll free* number in the US that is answered in the undersigned's Israel office. Israel is 7 hours ahead of Washington.

Respectfully submitted,
A. ANTEBI et al.



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